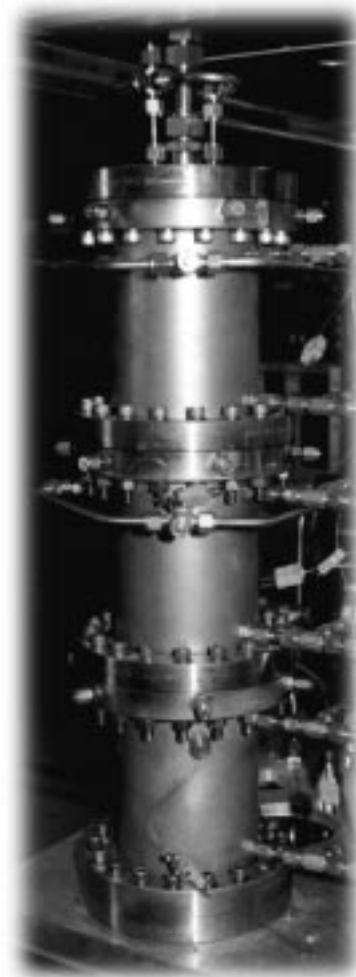




Office of Energy Efficiency
and Renewable Energy

Automotive Fuel Cell Technologies from DOE National Laboratories



*Clean-Up System Reduces Carbon
Monoxide Concentrations from
10,000 to 50 ppm for Fuel Cell System*

Background

The U.S. Department of Energy (DOE) national laboratories are working with industry partners to develop technologies that overcome critical barriers to automotive fuel cell development. These technologies include

- ◆ Low-cost, high-performance fuel-cell stack components
- ◆ Efficient, low-cost onboard fuel processing technology
- ◆ Reduced fuel-cell component size, weight, and cost

Accomplishments

Los Alamos National Laboratory

- ◆ Developed fabrication processes for fuel cell membrane-electrode assemblies
 - Reduced platinum loading decreases cost of catalyst by 90%
 - Increased tolerance to impurities that may be in fuel stream
 - Being evaluated and licensed by several fuel cell developers
- ◆ Developed carbon monoxide clean-up device
 - Integrated with gasoline fuel processor developed by Arthur D. Little and stacks by Plug Power

Argonne National Laboratory

- ◆ Developed fuel-processing technology for methanol-powered fuel cell systems
 - Transferred to General Motors for scale up and integration into its fuel cell development effort
 - Applied technology to gasoline fuel processing at bench scale

Benefits

- ◆ Fuel cell technologies will enable highly efficient, low- or zero-emission, cost-competitive, fuel-flexible vehicles.
- ◆ Laboratory technology is transferred to U.S. supply base.

Future Activities

- ◆ Develop low-cost components necessary for the system to be competitive.
- ◆ Develop high-volume manufacturing methods.
- ◆ Improve fuel processor technology to meet vehicle cost, start-up, and transient response requirements.

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